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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/998,699	11/30/2001	Karl P. Hauck	57121US002	6663

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EXAMINER	
DHARIA, PRABODH M	

ART UNIT	PAPER NUMBER
2673	

DATE MAILED: 09/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/998,699	HAUCK ET AL.	
	Examiner	Art Unit	
	Prabodh M Dharia	2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 November 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5-31-02,06-09-04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because abstract repeats the information given in the title. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-7,13-16,20,21,23,24,26,27 are rejected under 35 U.S.C. 102(e) as being anticipated by Gillespie et al. (US 2004/0178997 A1).

Regarding Claim 1, Gillespie et al. teaches a touch screen calibration system (page 13, paragraphs 168, 170,171) comprising: a touch screen (page 13, paragraphs 168,170,171) having a plurality of terminals (page 2, paragraph 16, Lines 3-7, page 4, paragraph 42,52, page 13, paragraph 170, Lines 3-16); a control circuit for applying at least one signal to said terminals (page 13, paragraphs 172,173, page 14, paragraphs 179,181), and sensing an effect on the signal due to a touch on the touch screen (page 14, paragraphs 179,181,182); a switching circuit for applying a calibration impedance to the touch screen (page 9, paragraphs 130,132, page 10, paragraphs 132, 133, page 13, paragraphs 168, 169); a microprocessor configured to calculate a measurement error upon application of the calibration impedance (page 11, paragraphs 147,148, 154, page 12, paragraphs 154, 157-160, page 9, paragraphs 130,132, page 10, paragraphs 132, 133, page 13, paragraphs 168, 169), and responsive to a touch, to apply the measurement error to obtain a corrected touch position from a measured touch position (page 11, paragraphs 147,148, 154, page 12, paragraphs 154, 157-160, page 9, paragraphs 130,132, page 10, paragraphs 132, 133, page 13, paragraphs 168, 169,172,173, page 14, paragraphs 179,181,182).

Regarding Claim 2, Gillespie et al. teaches the microprocessor is further configured to interpolate the offsets as a function of relative X, Y positions of the measured touch position (page 12, paragraphs 154, 157-160, page 13, paragraphs 168, 169,172,173, page 14, paragraphs 179,181,182).

Regarding Claim 3, Gillespie et al. teaches the microprocessor is configured to interpolate the offsets using error correction equations containing coefficients calculated by

solving simultaneous equations derived from a second order Taylor series expansion (page 12, paragraphs 154, 157-160, page 13, paragraphs 168, 169,172,173, page 14, paragraphs 179,181,182, Taylor series expansion is well known in the art as a mathematical formula (or equation) used as an **algorithm** to achieve convergence).

Regarding Claim 4, Gillespie et al. teaches the microprocessor is further configured to periodically operate the switching circuit (page 11, paragraphs 147,148, 154, page 12, paragraphs 154, 157-160, page 9, paragraphs 130,132, page 10, paragraphs 132, 133).

Regarding Claim 5, Gillespie et al. teaches the microprocessor is further configured to change the periodicity of operating the switching circuit in response to a predetermined change in a sensed quantity (page 11, paragraphs 147,148, 154, page 12, paragraphs 154, 157-160, page 9, paragraphs 130,132, page 10, paragraphs 132, 133, page 13, paragraphs 168, 169,172,173, page 14, paragraphs 179,181,182).

Regarding Claim 6, Gillespie et al. teaches the sensed quantity is temperature (page 11, paragraphs 147,148, 154, page 12, paragraphs 154, 157-160, page 9, paragraphs 130, 131, 132, page 10, paragraphs 132, 133).

Regarding Claim 7, Gillespie et al. teaches the microprocessor is further configured to prevent operation of the switching circuit at least while the touch screen is actively in use (page

11, paragraphs 147,148, 154, page 12, paragraphs 154, 157-160, page 9, paragraphs 130, 131, 132, page 10, paragraphs 132, 133).

Regarding Claim 13, Gillespie et al. teaches a method for calibrating a touch screen (page 13, paragraphs 168, 170,171) comprising: applying at least one signal to said terminals (page 13, paragraphs 172,173, page 14, paragraphs 179,181), of a touch screen (page 13, paragraphs 168,170,171) and sensing an effect on the signal due to a touch on the touch screen (page 14, paragraphs 179,181,182); a switching circuit for applying a calibration impedance to the touch screen terminals (page 9, paragraphs 130,132, page 10, paragraphs 132, 133, page 13, paragraphs 168, 169); a microprocessor configured to calculate a measurement error upon application of the calibration impedance (page 11, paragraphs 147,148, 154, page 12, paragraphs 154, 157-160, page 9, paragraphs 130,132, page 10, paragraphs 132, 133, page 13, paragraphs 168, 169), impedance applied to the calculating an X, Y position indicated for each terminal upon application of the calibration impedance (page 13, paragraph 169); and calculating an error for each terminal and responsive to a touch, to apply the measurement error to obtain a corrected touch position from a measured touch position (page 11, paragraphs 147,148, 154, page 12, paragraphs 154, 157-160, page 9, paragraphs 130,132, page 10, paragraphs 132, 133, page 13, paragraphs 168, 169,172,173, page 14, paragraphs 179,181,182).

Regarding Claim 14, Gillespie et al. teaches interpolating the errors as a function of relative X, Y positions of the measured touch position (page 12, paragraphs 154, 157-160, page 13, paragraphs 168, 169,172,173, page 14, paragraphs 179,181,182).

Regarding Claim 15, Gillespie et al. teaches the step of interpolating uses error correction equations containing coefficients calculated by solving simultaneous equations that model the screen errors as a two dimensional Taylor series (page 12, paragraphs 154, 157-160, page 13, paragraphs 168, 169,172,173, page 14, paragraphs 179,181,182, Taylor series expansion is well known in the art as a mathematical formula (or equation) used as an **algorithm** to achieve convergence).

Regarding Claim 16, Gillespie et al. teaches a touch screen calibration system (page 13, paragraphs 168, 170,171) comprising: a touch screen (page 13, paragraphs 168,170,171) having a plurality of terminals (page 2, paragraph 16, Lines 3-7, page 4, paragraph 42,52, page 13, paragraph 170, Lines 3-16); a control circuit for applying at least one signal to said terminals (page 13, paragraphs 172,173, page 14, paragraphs 179,181), and sensing an effect on the signal due to a touch on the touch screen (page 14, paragraphs 179,181,182); a switching circuit for applying a calibration impedance to the touch screen (page 9, paragraphs 130,132, page 10, paragraphs 132, 133, page 13, paragraphs 168, 169); a microprocessor configured to calculate a measurement error upon application of the calibration impedance (page 11, paragraphs 147,148, 154, page 12, paragraphs 154, 157-160, page 9, paragraphs 130,132, page 10, paragraphs 132, 133, page 13, paragraphs 168, 169), and responsive to a touch, to apply the measurement error to obtain a corrected touch position from a measured touch position (page 11, paragraphs 147,148, 154, page 12, paragraphs 154, 157-160, page 9, paragraphs 130,132, page 10, paragraphs 132, 133, page 13, paragraphs 168, 169,172,173, page 14, paragraphs 179,181,182).

Regarding Claim 20, Gillespie et al. teaches a method for calibrating a touch screen (page 13, paragraphs 168, 170,171) comprising: applying at least one signal to said terminals (page 13, paragraphs 172,173, page 14, paragraphs 179,181), of a touch screen (page 13, paragraphs 168,170,171) and sensing an effect on the signal due to a touch on the touch screen (page 14, paragraphs 179,181,182); a switching circuit for applying a calibration impedance to the touch screen terminals (page 9, paragraphs 130,132, page 10, paragraphs 132, 133, page 13, paragraphs 168, 169); a microprocessor configured to calculate a measurement error upon application of the calibration impedance (page 11, paragraphs 147,148, 154, page 12, paragraphs 154, 157-160, page 9, paragraphs 130,132, page 10, paragraphs 132, 133, page 13, paragraphs 168, 169), impedance applied to the calculating an X, Y position indicated for each terminal upon application of the calibration impedance (page 13, paragraph 169); and calculating an error for each terminal and responsive to a touch, to apply the measurement error to obtain a corrected touch position from a measured touch position (page 11, paragraphs 147,148, 154, page 12, paragraphs 154, 157-160, page 9, paragraphs 130,132, page 10, paragraphs 132, 133, page 13, paragraphs 168, 169,172,173, page 14, paragraphs 179,181,182).

Regarding Claim 21, Gillespie et al. teaches the touch screen is a capacitive touch screen (page 5, paragraph 83, Lines 1-6).

Regarding Claim 23, Gillespie et al. teaches a method for calibrating a touch screen (page 13, paragraphs 168, 170,171) comprising: applying at least one signal to said terminals (page 13, paragraphs 172,173, page 14, paragraphs 179,181), of a touch screen (page 13, paragraphs

168,170,171); sensing an effect on the signal due to a touch on the touch screen (page 14, paragraphs 179,181,182); calculate a measurement error upon application of the calibration impedance (page 11, paragraphs 147,148, 154, page 12, paragraphs 154, 157-160, page 9, paragraphs 130,132, page 10, paragraphs 132, 133, page 13, paragraphs 168, 169), and applying error to obtain a corrected touch position from a measured touch position (page 11, paragraphs 147,148, 154, page 12, paragraphs 154, 157-160, page 9, paragraphs 130,132, page 10, paragraphs 132, 133, page 13, paragraphs 168, 169,172,173, page 14, paragraphs 179,181,182).

Regarding Claim 24, Gillespie et al. teaches the touch screen is a capacitive touch screen (page 5, paragraph 83, Lines 1-6).

Regarding Claim 26, Gillespie et al. teaches a method for calibrating a touch screen (page 13, paragraphs 168, 170,171) comprising: applying at least one signal to said terminals (page 13, paragraphs 172,173, page 14, paragraphs 179,181), of a touch screen (page 13, paragraphs 168,170,171); sensing an effect on the signal due to a touch on the touch screen (page 14, paragraphs 179,181,182); calculate a measurement error upon application of the calibration impedance (page 11, paragraphs 147,148, 154, page 12, paragraphs 154, 157-160, page 9, paragraphs 130,132, page 10, paragraphs 132, 133, page 13, paragraphs 168, 169), and applying error to obtain a corrected touch position from a measured touch position (page 11, paragraphs 147,148, 154, page 12, paragraphs 154, 157-160, page 9, paragraphs 130,132, page 10, paragraphs 132, 133, page 13, paragraphs 168, 169,172,173, page 14, paragraphs 179,181,182).

and applying the error to determine if the touch screen is functioning within predetermined limits (page 12, paragraph 157, page 13, paragraphs 166,167).

Regarding Claim 27, Gillespie et al. teaches the touch screen is a capacitive touch screen (page 5, paragraph 83, Lines 1-6).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 8-12,17-19,22,25,28 rejected under 35 U.S.C. 103(a) as being unpatentable over Gillespie et al. (US 2004/0178997 A1) as applied to claim 1-7,13-16,20,21,23,24,26,27 above, and further in view of Meadows (5,053,757).

Regarding Claim 8, Gillespie et al. teaches a touch screen calibration system (page 13, paragraphs 168, 170,171) comprising: a touch screen (page 13, paragraphs 168,170,171) having a plurality of terminals (page 2, paragraph 16, Lines 3-7, page 4, paragraph 42,52, page 13, paragraph 170, Lines 3-16); a control circuit for applying at least one signal to said terminals (page 13, paragraphs 172,173, page 14, paragraphs 179,181).

However, Gillespie et al. fails to teach the plurality of terminals includes four terminals.

However, Meadows teaches the plurality of terminals includes four terminals (Col. 6, Lines 44-47)

Thus it would have been obvious to one in the ordinary skill in the art at the time of invention was made to incorporate the teaching of Meadows in Gillespie et al. teaching, to be able to provide the use of adaptive or variable noise reduction methods and apparatus in a touch panel to enhance the accuracy of touch location determination.

Regarding Claim 9, Meadows teaches the four terminals are located one in each corner of the touch screen (Col. 14, Lines 25-39).

Regarding Claim 10, Gillespie et al. teaches the same calibration impedance is applied to each terminal (page 9, paragraphs 130, 131, 132, page 10, paragraphs 132, 133).

Regarding Claim 11, Gillespie et al. teaches the touch screen is a capacitive touch screen (page 5, paragraph 83, Lines 1-6).

Regarding Claim 12, Meadows teaches the touch screen is a resistive touch screen (Col. 14, lines 25-39).

Regarding Claim 17, Meadows teaches the microprocessor is further configured to normalize the gain error (Col. 12, Lines 17-25, 36-43, Col. 17, Lines 35-37, Col. 20, Lines 14-27, Col. 31, Lines 50-59).

Regarding Claim 18, Meadows teaches the microprocessor is further configured to store the normalized gain error (Col. 32, Lines 7-20, Col. 12, Lines 17-25, 36-43, Col. 17, Lines 35-37, Col. 20, Lines 14-27, Col. 31, Lines 50-59).

Regarding Claim 19, Meadows teaches the microprocessor is further configured to apply the normalized gain error to the measured touch position (Col. 32, Lines 7-20, Col. 12, Lines 17-25, 36-43, Col. 17, Lines 35-37, Col. 20, Lines 14-27, Col. 31, Lines 50-59, Col. 30, Lines 33-33-36).

Gillespie et al. teaches the microprocessor is further configured to apply the normalized gain error to the measured touch position (page 11, paragraphs 147,148, 154, page 12, paragraphs 154, 157-160, page 9, paragraphs 130,132, page 10, paragraphs 132, 133, page 13, paragraphs 168, 169).

Regarding Claim 22, Meadows teaches the touch screen is a resistive touch screen (Col. 14, lines 25-39).

Regarding Claim 25, Meadows teaches the touch screen is a resistive touch screen (Col. 14, lines 25-39).

Regarding Claim 28, Meadows teaches the touch screen is a resistive touch screen (Col. 14, lines 25-39).

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant is informed that all of the other additional cited references either anticipate or render the claims obvious. In order to not to be repetitive and exhaustive, the examiner did draft additional rejection based on those references.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Geaghan et al. (US 2003/0063073 A1) Touch panel system and method for distinguishing multiple touch inputs.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prabodh M Dharia whose telephone number is 703-605-1231. The examiner can normally be reached on M-F 8AM to 5PM.

10. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703-3054938. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

PD

AU2673

09-20-2004

VIJAY SHANKAR
PRIMARY EXAMINER